Quantum®

Rebel Fleet Adopts Quantum Storage to Provide Impressive Post-Production Capabilities in Challenging On-Location Environments

Based in New Zealand, The Rebel Fleet provides a wide range of digital workflow services for television and film production crews, including on-location color correction and quality control, archiving, content delivery, and more. To meet the rigorous demands of a large-scale film project, the company implemented scalable, high-performance storage from Quantum. The solution enabled The Rebel Fleet to reliably support real-time processes involving high-resolution content in the field while maintaining a small footprint for a mobile rig.

FEATURED PRODUCTS

StorNext®

"StorNext has changed the way we work. It provides the performance we need plus the flexibility to support a wide variety of creative tools and processes. With StorNext, we are completely unconstrained."

Michael Urban
Founder and Managing Director, The Rebel Fleet

> "With the Quantum solution, we were able to crank out 150 frames per second in three different formats while also supporting real-time color grading....It was very impressive, and it helped us meet tight turnaround times."
>
> **Michael Urban** – Founder and Managing Director, The Rebel Fleet

SOLUTION OVERVIEW

- Quantum StorNext® storage platform
- Quantum Xcellis® workflow storage
- Quantum QXS™ hybrid storage

KEY BENEFITS

- **Delivers real-time performance** for high-resolution RAW workflows
- **Enables seamless scalability** to support upgrading without costly downtime
- **Supports use in on-location shoots** with maximum density and minimal footprint
- **Offers exceptional reliability** for a high-stakes Hollywood production
- **Provides the needed flexibility** to support a wide range of future projects

The Rebel Fleet was engaged on a live-action film project for a major Hollywood studio. Principle photography was set for New Zealand and China, and the production team was planning to use ARRI ALEXA 65 cameras to shoot raw, high-resolution, uncompressed data. The Rebel Fleet proposed a full range of digital workflow services, including conducting initial color grading and quality control, archiving content to digital tape, creating mezzanine and proxy formats for post production, and uploading clips to a secure online dailies platform for immediate review by key stakeholders.

To meet the studio's expectations, The Rebel Fleet had to upgrade its storage systems. "In the past, we had used direct-attached storage as part of our rigs," says Michael Urban, founder and managing director at The Rebel Fleet. "But to manage the digital workflows for this new film, and to support onset processing of high-resolution media, we needed higher-performance shared storage."

The solution also had to be mobile, and therefore dense from the perspective of both performance and capacity. "We needed to incorporate storage systems into a mobile rig that would be loaded onto a truck and carted to various remote locations," says Urban.

CONNECTING WITH FACTORIAL AND CHOOSING QUANTUM

The Rebel Fleet team began looking for storage technology that could provide the performance and mobility required for this new film project. "They initially evaluated a few NAS solutions, but those solutions couldn't meet their needs," says Tim Benson, director and technology evangelist at Factorial, which designs digital workflow solutions for broadcast and post-production studios, and is considered one of the region's foremost experts on the subject. "When The Rebel Fleet team started to look at the next performance level up for their unique needs, we suggested they take a look at Quantum storage."

With help from Factorial—a Quantum partner—The Rebel Fleet team started to explore Quantum solutions. "Instead of focusing on capacity or bandwidth, we talked about workflow," says Benson. "And that discussion centered on the benefits of the Quantum StorNext platform."

The Rebel Fleet ultimately selected Quantum Xcellis workflow storage plus Quantum QXS hybrid storage systems for online and nearline storage. "Quantum QXS systems are military-grade storage," says Benson, "so we knew they would work in this rugged, mobile environment."

The mobile rig used multiple Apple Mac Pro computers for ingesting, calculating checksums, archiving to LTO tape, and color grading. Fibre Channel connectivity provided high-bandwidth network performance.

ACHIEVING FAST DEPLOYMENT

The Rebel Fleet, Factorial, and Quantum all worked together to rapidly assemble and deploy the mobile rig. Fortunately, the Factorial team has more than a decade of experience creating similar customized solutions for large-scale productions.

"We were under serious time constraints," says Urban. "The Factorial team collaborated with Quantum to build the solution and deliver it to us within only ten days."

DELIVERING HIGH PERFORMANCE FOR REAL-TIME COLOR GRADING AND FAST RENDERING

High-performance storage based on the StorNext file system helped significantly speed up color grading. "Normally you'd grade away, submit your renders, and then have a cup of tea. Or you'd try to do more grading, but you wouldn't be able to work in real time," says Benson. "But the environment we designed allowed the colorist to keep cutting and grading just as fast as he wanted." This ultimately made the entire production process run much more efficiently.

"Our colorist Pete Harrow has been working on large-scale projects for years, and he had never experienced the performance he achieved with this environment," says Urban. "He was instantly happy."

The same high-performance storage environment also accelerated rendering. "With the Quantum solution, we were able to crank out 150 frames of footage per second in three different formats while also supporting real-time color grading," says Urban. "Overall, this online environment delivered 6 GB per second of throughput. It was very impressive, and it helped us meet tight turnaround times."

SEAMLESSLY SCALING—IN THE MIDDLE OF NOWHERE

The StorNext platform enabled the Factorial team to scale the ingest volume, doubling its size from 200 to 400 TB, without interrupting the shooting schedule. "Halfway through the production, the production team started shooting much more than they had planned," says Benson. "We had to fly to South Island, drive on a dirt road up a mountain valley, and do a field expansion of this system to add capacity—with previously ingested data still residing in the environment. Fortunately, StorNext performed in the real-world exactly as was advertised, and truly let us scale the system seamlessly. The Rebel Fleet team and the film production crew were very happy."

PROVIDING TREMENDOUS CAPACITY IN A MOBILE RIG

The Quantum storage systems were able to provide the capacity for a large volume of high-resolution footage in a very dense environment. "In all, the environment processed nearly 900 TB over the course of the shoot," says Benson. "And we managed to provide all that capacity in a rig that was the size of a deep refrigerator."

The rig's mobility enabled The Rebel Fleet team to set up temporary on-location review

> "We had to fly to an island, drive on a dirt road up a mountain, and do a field expansion of this system to add capacity—with previously ingested data still residing in the environment. Fortunately, StorNext performed in the real-world exactly as was advertised, and truly let us scale the system seamlessly."

Tim Benson
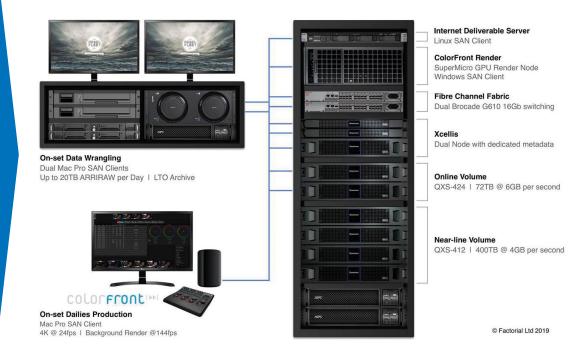Director and Technology Evangelist, Factorial

ABOUT THE REBEL FLEET

Based in New Zealand, The Rebel Fleet offers a full range of digital workflow services to top film and television production companies. The Rebel Fleet enables its clients to address broad creative needs and retain total image control across multiple shooting units—all while achieving fast turnarounds. Previous projects have included the feature film *Ghost in the Shell*, *The Making of the Mob* documentary television series, and the *Power Rangers Ninja Steel* television series.

ABOUT FACTORIAL

Based in Wellington, New Zealand, Factorial has deep expertise designing broadcast and post-production workflows — from small creative workgroups all the way to the largest post-production pipelines on the planet. The company has a customer-centric philosophy – starting by understanding how a customer works, and then identifies opportunities to simplify complex tasks, and improve productivity. Factorial can solve even the most complex integration challenges using our toolbox of technology building blocks.

The Solution Architecture

On-set Data Wrangling
Dual Mac Pro SAN Clients
Up to 20TB ARRIRAW per Day | LTO Archive

On-set Dailies Production
Mac Pro SAN Client
4K @ 24fps | Background Render @144fps

Internet Deliverable Server
Linux SAN Client

ColorFront Render
SuperMicro GPU Render Node
Windows SAN Client

Fibre Channel Fabric
Dual Brocade G610 16Gb switching

Xcellis
Dual Node with dedicated metadata

Online Volume
QXS-424 | 72TB @ 6GB per second

Near-line Volume
QXS-412 | 400TB @ 4GB per second

© Factorial Ltd 2019

environments even in remote locations. "It felt like you were in a plush post-production house, even though you were actually in the garage of a hunting lodge far away from power or internet connectivity," says Benson.

The director, director of photography, and others could review footage, and evaluate color grades and lighting, minutes after calling "cut." Providing that immediate feedback enabled the production team to make critical creative decisions and maximize on-set productivity.

MAINTAINING STRONG RELIABILITY ON A HIGH-PROFILE PROJECT

Though The Rebel Fleet was able to create an on-set review environment with the mobile rig, the team was constantly aware that they were miles away from support personnel. "When you're working on a high-profile film project with tight deadlines, and you're shooting in remote locations, you can't have technology failures," says Urban. "The Quantum systems exceeded our reliability expectations. We ran the environment very hard for five months without any issues."

GAINING THE FLEXIBILITY FOR FUTURE PROJECTS

The positive experience with Quantum storage on the major studio film led The Rebel Fleet to acquire additional Quantum systems. The company deployed another Xcellis system for television and commercial workflows, and it has standardized on StorNext and Xcellis for all high-performance needs going forward.

"StorNext has changed the way we work," says Urban. "It provides the performance we need plus the flexibility to support a wide variety of creative tools and processes. With StorNext, we are completely unconstrained."

Quantum®

www.quantum.com

CS00474A-v01